



Improving Mathematics Learning Results on Multiplication Material Using the Teams Game Tournament Learning Method in Class IV Madrasah Ibtidaiyah

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ABSTRACT

Purpose of the study: The purpose of this research is to improve learning outcomes and meet the target of achieving the minimum completeness criteria for mathematics regarding multiplication calculation operations using the teams game tournament learning method in class IV Madrasah Ibtidaiyah Kawengen, East Ungaran sub-district, Semarang Regency.

Methodology: This research is Classroom Action Research with planning, action, observation and reflection steps carried out in three cycles. The research was carried out in class IV at Madrasah Ibtidaiyah Kawengen with a total of 19 students.

Main Findings: Based on the results of research conducted at Madrasah Ibtidaiyah Kawengen, East Ungaran District, Semarang Regency, it can be concluded that the teams game tournament learning method can improve learning outcomes and can meet the target of achieving the minimum completeness criteria for mathematics multiplication calculation operations in class IV students. This is evidenced by an increase in the completeness of mathematics learning outcomes in each cycle and the achievement of a percentage of mathematics learning outcomes that classically exceeds the minimum completeness criteria achievement limit.

Novelty/Originality of this study: The novelty of this research is the application of the Teams Game Tournament learning method to improve mathematics learning outcomes in multiplication material.

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1. INTRODUCTION

Education in the history of human civilization is one of the most urgent components of life [1]-[3]. This activity has been started since the first humans appeared on earth until the end of life on this earth. Education is essentially a conscious effort for personality development that lasts a lifetime, both at school and madrasah [4]-[6]. So education is very necessary for every individual as a provision to face future challenges that are increasingly complex and full of competition. So this is where education plays a role as a determinant of the quality, competitiveness and value of each individual.

Because education is so important for everyone, education in this country should run and run optimally. Even the Islamic religion itself pays special attention to education. Mathematics is one of the fields of study at all

levels of education, from elementary school to university level [7]-[9]. Even mathematics is taught in kindergarten informally. Learning mathematics is a sufficient requirement to continue your education to the next level. By studying mathematics we will learn to reason critically, creatively and actively [10], [11]. Susanto [12] also said that mathematics is a scientific discipline that can improve thinking and argumentation skills, contribute to solving daily problems in the world of work and provide support in the development of science and technology. The need for current and future applications of mathematics is not only for daily needs but especially in the world of work and to support the development of science. Therefore, mathematics as a basic science needs to be mastered well by students, especially from elementary school age.

Students need mathematics to count, calculate the contents and weight of an object, collect, manage, present and interpret data, and students even need it to be able to take further mathematics lessons [13], [14]. Mathematics subjects include several competencies that enable students to understand and understand basic concepts, because mathematics has a strong and clear structure and connections between concepts. The low quality of student learning outcomes in mathematics is an indication that the objectives specified in the curriculum have not been achieved optimally. The subject that is often considered difficult by Madrasah Ibtidaiyah students is multiplication. Multiplication is material that pairs with each other. This material is an essential material that takes quite a long time to cultivate. Even if it is presented in the form of story questions, students often experience difficulties. Therefore, various efforts to improve student learning outcomes must continue to be made. These efforts require high learning motivation, great enthusiasm for learning and high self-confidence. Efforts to foster enthusiasm in students, especially in mathematics lessons, by choosing the right learning model according to the material to be delivered. Applying varied models can reduce students' boredom in receiving lessons [15]-[17].

In the mathematics learning process, both teachers and students together become actors in implementing learning objectives [18]-[20]. This learning objective will achieve maximum results if learning runs effectively. Effective learning is learning that is able to actively involve all students. According to Susanto [12] effective learning is learning that makes it easier for students to learn something useful, such as facts, skills, values, concepts and how to live in harmony with others or desired learning outcomes. Developing effective learning is like building a house. The house consists of bricks and requires a solid building base. Otherwise, the house will be destroyed when pressure occurs. It's the same with learning, if the basics of learning are not appropriate, students will experience difficulties when facing new and challenging learning tasks. Creative, effective and fun learning will foster student enthusiasm. With high enthusiasm, it will be easier for teachers to improve student learning outcomes [21], [22].

Based on the results of interviews with Madrasah Ibtidaiyah Kawengen class IV class teachers, mathematics learning outcomes are still low compared to other subjects. Low learning outcomes are indicated by the number of students who have not reached the Minimum Completion Criteria. It is known that of the 19 class IV students, only 6 people (32%) were able to achieve the Minimum Completion Criteria. Meanwhile, the remaining 13 people (68%) scored below the specified Minimum Completion Criteria. Based on the results of discussions between researchers and mathematics teachers, the reason for the low learning outcomes of Madrasah Ibtidaiyah Kawengen 01 students is that some students are less serious about receiving mathematics lesson material, especially multiplication. This can be seen from the students' attitudes when participating in learning activities. When the teacher delivered the material, many students were seen chatting and joking with their friends. There are also those who look bored and daydreaming, there are even those who are having fun playing alone. When students are given practice questions, most students are still confused about solving the problems given if the questions are not exactly the same as the examples given by the teacher. Allegedly because they do not understand the concepts being taught. Some students just looked left and right from their friends' work so the class atmosphere became busy. Only a few students were able to solve the questions quickly and correctly. From this situation, the researcher felt that the learning strategy used was less effective. Mathematics learning activities for class IV Madrasah Ibtidaiyah Kawengen 01 are still teacher-centered. Students are still passive, because teachers dominate learning activities rather than giving students opportunities to play an active role.

From several descriptions of the causes of low student learning outcomes above, researchers believe that the cause is the lack of effective learning strategies used by teachers. As a result, students find it difficult to follow mathematics lessons, resulting in a feeling of boredom during the learning process. Therefore, researchers will offer a solution with cooperative learning strategies. Cooperative learning is a form of learning where students help each other, discuss and argue with each other to hone the knowledge they have mastered with their group members after the teacher has delivered the lesson material. The use of cooperative learning increases student achievement and can also develop relationships between groups, accept classmates who are weak in academics and increase their sense of self-esteem. Cooperative learning can be applied to all types of classes including special classes for gifted children and even for classes with an average level of intelligence [23].

One form of cooperative learning is the Teams Games Tournament. Teams Games Tournament cooperative learning is a type or form of cooperative learning that is easy to implement, involves the activities of all students without any differences in status, involves the role of students as peer tutors and contains elements of play [24], [25]. In the learning process, this model uses academic tournaments and uses quizzes and an individual

progress scoring system where students compete as representatives of each team with members of other teams whose previous academic performance is the same. Each team competes to collect the highest score. The team that gets the highest score will get an award from the teacher. Research on cooperative learning finds that group appreciation is an important part of cooperative learning [26], [27].

Research regarding the application of the teams game tournament learning model has been carried out by several researchers with the results that applying the teams game tournament learning model can improve students' mathematics learning outcomes [28], [29]. This research is in line with previous research, namely efforts to improve student mathematics learning outcomes by implementing team game tournament learning. The novelty of this research is the application of the teams game tournament learning method to improve mathematics learning outcomes in multiplication material. This research is important because the team game tournament learning method can improve mathematics learning outcomes for multiplication material in class IV Madrasah Ibtidaiyah, helping students be more active and understand concepts better through a fun and interactive approach. After knowing the problems of mathematics learning in class IV of Madrasah Ibtidaiyah Kawengen and the advantages of the teams game tournament learning method, researchers were interested in discussing this matter. The aim of this research is to determine the improvement in mathematics learning outcomes in multiplication material by applying the Teams Game Tournament learning method to fourth grade students at Madrasah Ibtidaiyah.

2. RESEARCH METHOD

2.1 Types of Research

This research design uses Classroom Action Research. The action planned in the research is the application of the Teams Game Tournament learning method with the aim of improving the learning outcomes of class IV students at Madrasah Ibtidaiyah Kawengen 01, Ungaran Timur District, Semarang Regency. Classroom Action Research is an examination in the form of action on learning activities that are deliberately created and occur in a class simultaneously. Classroom Action Research is how a group of teachers can organize their learning practice conditions and learn from their own experiences. They can try out an idea for improvement in learning practices and see the real impact of that effort [30].

This research uses Classroom Action Research with consideration of the problems that occur in class IV Madrasah Ibtidaiyah Kawengen 01, namely low student learning outcomes in mathematics learning. The researchers discovered this from the results of discussions with class IV teachers at Madrasah Ibtidaiyah Kawengen 01 that the cause was the lack of effective implementation of the learning process. The aim of implementing Class Action Research is to improve and increase the professional services of educators in handling the teaching and learning process [31].

2.2 Research Subject

The subjects of this research were mathematics teachers and class IV students at Madrasah Ibtidaiyah Kawengen, East Ungaran District, Semarang Regency. There are 19 students in class IV consisting of 11 boys and 8 girls. This research was carried out in 3 cycles, namely cycle I followed by cycle II to cycle III which was adapted to natural learning situations, meaning it did not change the lesson schedule.

2.3 Research Steps

Cycle I has several stages, namely action planning, action implementation (Acting), observation, and reflection. (1) Action planning is carried out by making a learning implementation plan using the Teams Game Tournament learning method. In each cycle, students are divided into small groups. Each group consists of 5 students. Group members consist of students with heterogeneous abilities and gender. Group division is carried out at the beginning of learning, namely in Cycle I, then in the next cycle the same groups are still used. The way to form groups is to use data on the mathematics scores of class IV students in the pre-cycle, namely before the implementation of Cycle I, Cycle II and Cycle III. From the pre-cycle results, student scores are sorted from highest to lowest. Students are divided into small groups, each of which consists of students who have heterogeneous abilities. (2) Acting is carried out by designing the Teams Game Tournament learning method with three activity stages, namely preliminary activities, core activities and final activities. Preliminary activities consist of perception and motivation as well as carrying out an initial test (pre-test). Core activities include forming study groups, group discussions, games, tournaments and final tests. During the learning process, the teacher in teaching uses the Learning Implementation Plan that has been prepared by the researcher. The researcher served as an observer using a prepared observation sheet. (3) Observations are carried out by researchers and teachers as implementers of learning activities. Observations were carried out during learning activities using observation sheets that had been prepared by the researcher. Observation sheets are used to determine the progress of learning using the Teams Game Tournament learning method. (4) Reflection is carried out by researchers by collecting and identifying the data that has been obtained. This includes observation sheets and field notes, then the researcher reflects. After evaluating the results that have been obtained, namely by assessing the process during the learning process,

identifying problems that arise related to things that have been done in the form of shortcomings/weaknesses, then planning improvements. After reflecting, the researcher formulated plans for the next cycle.

Cycle II, In this second cycle stage, it follows the stages of the first cycle. This means that the second action plan is prepared based on the results of reflection in the first cycle. The activities in the second cycle were carried out as a refinement or improvement in the first cycle regarding the implementation of learning using the Teams Game Tournament learning method. This second cycle also consists of four stages, namely; planning, implementing actions, observing and reflecting on the results that have been carried out. If in Cycle II the results have not reached the specified minimum completeness criteria, the researcher continues the next cycle until the expected results are achieved. The model or design used in this classroom action research is the Kemmis and Taggart model, which in one cycle consists of; planning, action, observation and reflection. In detail, the procedures for implementing this Classroom Action Research can be used as follows [31]:

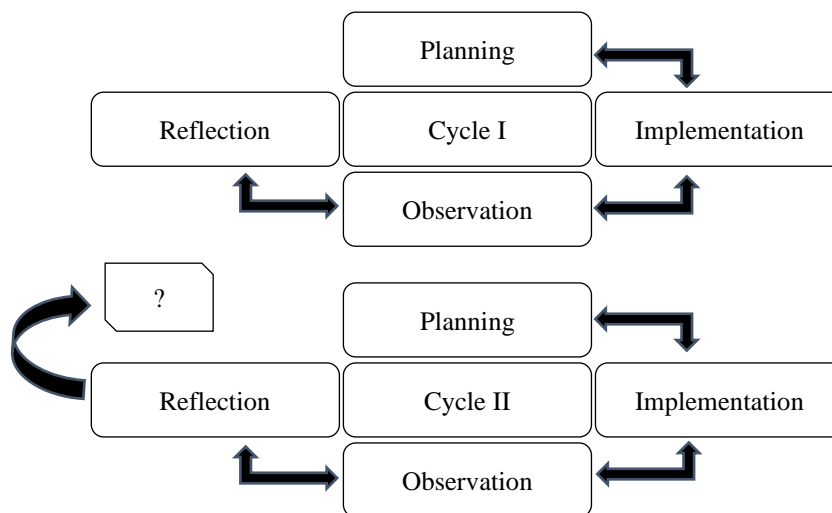


Figure 1. Classroom Action Research Model

2.4 Research Instrument

An instrument is a measuring tool used to obtain information about the characteristics of data objectively. The instruments used by researchers in this research were observation sheets, interviews, test questions, documentation.

2.5 Data Analysis

The data analysis technique used in this research is quantitative and qualitative descriptive analysis, namely describing the data using numbers and then explaining it in clear and detailed sentences. The data analysis technique in this research is to test the mathematics learning outcomes of class IV Madrasah Ibtidaiyah Kawengen 01 by providing pre-tests and post-tests in each cycle. Quantitative data analysis is used to compare learning outcomes before and after implementing the teams game tournament learning method , namely in the pre-cycle, cycle I, cycle II and so on until the specified minimum completeness criteria are achieved. The data is presented in table form which is easy to understand as a whole. To calculate data in the form of numbers from the post test results, researchers will use statistical formulas for average class size. The class average can be calculated using the formula [32]:

$$X = \frac{\sum X}{N} \dots\dots\dots(1)$$

Information:

- X : Average student score
- $\sum X$: Total student scores
- N : Number of students

To find the percentage for each activity, use the percentage formula [33].

$$P = \frac{F}{N} \times 100\% \dots\dots\dots(2)$$

Information:

- P: Total value in percent
- F: Total student scores
- N: The total number of students .

Measurements in order to assess student learning success generally use quantitative measures in the form of numbers. The numbers are then analyzed using statistical strategies and then explained qualitatively. To determine whether learning outcomes are high or low, standard scale values can be used, namely a range of values from 1-100. Next, these values are converted into several groups with the following categories [32]:

- 80-100 : Very high
- 66-80 : High
- 56-65 : Medium
- 40-55 : Low
- ≤ 40 : Very Low

Researchers will use the average student score to determine the high and low student learning outcomes. In this case, a scaled standardized assessment will be used with a value range of 1-100 as mentioned above.

3. RESULTS AND DISCUSSION

The initial conditions before the classroom action research was carried out can be seen from the mathematics learning habits in the class, this is shown by the students' low ability to calculate multiplication. These initial conditions were used as a reference in carrying out classroom action research on class IV students at Madrasah Ibtidaiyah Kawengen 01, East Ungaran District. That fourth grade students are still low in calculating multiplication. Namely, it can be seen from the student score data, only 6 students (32%) got a score that reached the minimum completeness criteria, namely ≥ 70 with an average student score of 58.4 and 13 students (68%) still got a score below the minimum completeness criteria. This observation data was used as a basis for implementing the Teams Game Tournament learning method before conducting research on class IV students at Madrasah Ibtidaiyah Kawengen 01, East Ungaran District, Semarang Regency.

3.1 Cycle I

Cycle I was carried out in class IV with a total of 19 students. This research was carried out in four stages, namely:

(a) Planning

At this stage, information was obtained at the observation stage, then a discussion was held with the class IV teacher regarding the learning material that would be presented using the Teams Game Tournament learning method and other supporting tools that needed to be used. Apart from learning materials and media, what was discussed with the teacher was the group division which was carried out heterogeneously. Before teaching Cycle I, the researcher prepared everything to support the learning process. Among them are Learning Implementation Plans, student worksheets, learning media and observation sheets.

(b) Implementation of Actions

At the beginning of the lesson, the teacher greets the students and then invites students to pray, followed by attendance. The teacher does not forget to check the clothes, positions and seats to be tidied and gives encouragement to the students before the lesson begins. Next, the teacher conveys the learning objectives and explains the steps of the Teams Game Tournament learning method followed by a pre-test to introduce the material to students before receiving the lesson. Then, after the initial activity is finished, the main activity continues, namely the teacher explains material about multiplication as repeated addition, multiplying numbers by 1 and 0, completing multiplication in a row and using story problems. Students explore the material that has been explained. Next, students are divided into heterogeneous groups. Students are asked to join their respective groups. The teacher gives students worksheets regarding the material that has been presented to be worked on in groups as learning material for tournament games. Students work together in groups, think together and unite their opinions on the answers and questions and convince each member of their team. After completing the Student Worksheet, a game is played. As a final activity in learning, the teacher reminds students that the next meeting will still use the Teams Game Tournament and provides information that the one who gets the highest score from the Cycle I post test will receive a reward given at the next meeting. Before the lesson closed, the teacher reminded students to study at home about the material that would be taught at the next meeting.

(c) Observation

When Cycle I learning was in progress, the researcher asked for help from observers to observe the learning process from start to finish by filling in the observation sheet provided. This observation is also additional information that the use of the Teams Game Tournament learning method can improve student learning outcomes and can explore student knowledge and increase teacher knowledge regarding learning strategies that can be applied in learning. Data recapitulation is as follows:

Table 1. Recapulation of cycle I student activity observation sheets

No	Phase	Score					Amount
		0	1	2	3	4	
1	Initial activity	0	1	1	2	0	9
2	Core activities	0	1	4	5	0	24
3	End activities	0	0	2	2	0	10
Amount							43
Average							2,4

Table 2. Recapulation of cycle I teacher activity observation sheets

No	Phase	Score					Amount
		0	1	2	3	4	
1	Initial activity	0	1	2	1	0	8
2	Core activities	0	0	4	6	0	26
3	End activities	0	0	2	2	0	10
Amount							44
Average							2,4

Scoring category scale

Maximum score = 4

Minimum score = 0

Average category:

0.0 – 0.8 = very poor

0.9 – 1.6 = less

1.7 – 2.4 = sufficient

2.5 – 3.2 = good

3.3 – 4.0 = very good

The value of student learning outcomes after using the Teams Game Tournament learning method is as follows:

Table 3. Cycle I Formative Test Results

Number of Students	19 students
Number of Values	1410
Average value	74.2
Complete	11 students (58%)
Incomplete	8 Students (42%)

(d) Reflection

Based on the scores obtained in Cycle I, although they were not yet satisfactory because classically they had not yet reached 85% completeness, there was an increase in learning outcomes compared to the Pre-Cycle results. There were 6 students (32%) who completed the Pre-Cycle, and in the First Cycle it increased to 11 students (58%). The average score for Pre-Cycle to Cycle I students also increased, namely from 58.4 to 74.2. The remaining 8 students are still declared incomplete in learning the multiplication arithmetic operation.

3.2 Cycle II

The results of reflection in Cycle I have not yet reached the indicators of success, that is, classically they have not achieved completeness for 85% of the total students in one class with a score of $70 \geq$. The indicators of success have not been achieved because there are still obstacles for teachers and students in learning mathematics through the Teams Game Tournament learning method. Therefore, the obstacles that existed in Cycle I will be corrected in Cycle II. Cycle II was carried out in class IV with a total of 19 students. This research was carried out in four stages, namely:

a) Planning

The learning plan in Cycle II was carried out after obtaining the results of the information in Cycle I, then a discussion was held with the class IV teacher as observer regarding the corrective steps that would be taken in Cycle II as well as the learning material that would be presented using the Teams Game Tournament learning method and other supporting tools provided. need to be used. Before teaching in Cycle II, the researcher prepared everything to support the learning process. Among them are Learning Implementation Plans, student worksheets, learning media, and observation sheets.

b) Implementation of Actions

At the beginning of the lesson, the teacher greets the students and then invites students to pray, followed by attendance. The teacher doesn't forget to check clothes, positions and seats to tidy up and encourage students before the lesson starts. Next, the teacher conveys the learning objectives and explains the steps of the Teams Game Tournament learning method followed by a pre-test to introduce the material to students before receiving the lesson. After the initial activity is finished, the main activity continues, namely the teacher explains material about multiplication, multiplication with the exchange property (commutative), multiplication with the grouping property (associative) and multiplication with the distribution property (distributive). Students explore the material that has been explained. Next, students are divided into heterogeneous groups. Students are asked to join their respective groups. The teacher gives students worksheets regarding the material that has been presented to be worked on in groups as learning material for tournament games.

c) Observation

Observers observe student activities, situations and conditions in the classroom during learning using the Teams Game Tournament learning method. Data recapitulation is as follows:

Table 4. Recapulation of cycle I student activity observation sheets

No	Phase	Score					Amount
		0	1	2	3	4	
1	Initial activity	0	0	1	3	0	11
2	Core activities	0	0	0	5	5	35
3	End activities	0	0	0	4	0	12
Amount							58
Average							3,2

Table 5. Recapulation of cycle I teacher activity observation sheets

No	Phase	Score					Amount
		0	1	2	3	4	
1	Initial activity	0	0	1	3	0	11
2	Core activities	0	0	0	6	4	34
3	End activities	0	0	0	3	1	13
Amount							58
Average							3,2

Scoring category scale

Maximum score = 4

Minimum score = 0

Average category:

0.0 – 0.8 = very poor

0.9 – 1.6 = less

1.7 – 2.4 = sufficient

2.5 – 3.2 = good

3.3 – 4.0 = very good

The value of student learning outcomes after using the Teams Game Tournament learning method is as follows:

Table 6. Cycle II Formative Test Results

Number of Students	19 students
Number of Values	1500
Average value	78.9
Complete	14 students (74%)
Incomplete	5 Students (26%)

d) Reflection

Based on the value obtained in Cycle II, it is quite satisfactory even though classically it has not yet reached completeness. There were 14 students who completed (74%) with an average student score of 78.9. The remaining 5 students were still declared incomplete in learning the multiplication arithmetic operation. Although there are still obstacles in the learning process, namely not all group members work together on the Student Worksheet questions, there has been an improvement compared to learning in Cycle I.

3.3 Cycle III

The results of reflection in Cycle II have not yet reached the indicators of success, namely classically not reaching 85% completeness. The indicators of success have not been achieved because there are still obstacles for teachers and students in learning mathematics through the Teams Game Tournament learning method. Therefore, the obstacles that existed in Cycle II will be corrected in Cycle III. Cycle III was carried out in class IV with a total of 19 students. This research was carried out in four stages, namely:

a) Planning

Learning in Cycle III is carried out after the information obtained in Cycle II is obtained, then a discussion is held with the class IV teacher as an observer regarding corrective steps that will be taken in Cycle III as well as learning material that will be presented using the Teams Game Tournament learning method and other necessary supporting tools. used. Before teaching in Cycle III, the researcher prepared everything to support the learning process. Among them are Learning Implementation Plans, student worksheets, learning media, and observation sheets.

b) Implementation of Actions

At the start of learning, the teacher greets the students and then invites them to pray, followed by attendance. The teacher does not forget to check their clothes, positions and seats to make them tidy and gives encouragement to the students before the lesson begins. Next, the teacher conveys the learning objectives and explains the steps of the Teams Game Tournament learning method followed by a pre-test to introduce the material to students before receiving the lesson. After the initial activity is finished, it continues with the core activity, namely the teacher explains the material about multiplication which has been explained in Cycle I and Cycle II. Students explore the material that has been explained. Next, students are divided into heterogeneous groups. Students are asked to join their respective groups. The teacher gives students worksheets regarding the material that has been presented to be worked on in groups as learning material for tournament games . Students work together in groups, think together and unite their opinions on the answers and questions and convince each member of their team. After completing the Student Worksheet, a game is played .

c) Observation

When Cycle III learning was in progress, the researcher asked for help from observers to observe the learning progress from start to finish by filling in the observation sheet provided. This observation is also additional information that the use of the Teams Game Tournament learning method can improve student learning outcomes and can explore student knowledge and increase teacher knowledge regarding learning strategies that can be applied in learning. Data recapitulation is as follows:

Table 7. Recapulation of cycle I student activity observation sheets

No	Phase	Score					Amount
		0	1	2	3	4	
1	Initial activity	0	0	0	4	0	12
2	Core activities	0	0	0	6	4	34
3	End activities	0	0	0	3	1	13
Amount							59
Average							3.3

Table 8. Recapulation of cycle I teacher activity observation sheets

No	Phase	Score					Amount
		0	1	2	3	4	
1	Initial activity	0	0	0	4	0	12
2	Core activities	0	0	0	6	4	34
3	End activities	0	0	0	3	1	13
Amount							59
Average							3.3

Scoring category scale

Maximum score = 4

Minimum score = 0

Average category:

0.0 – 0.8 = very poor

0.9 – 1.6 = less

1.7 – 2.4 = sufficient

2.5 – 3.2 = good

3.3 – 4.0 = very good

The value of student learning outcomes after using the Teams Game Tournament learning method is as follows:

Table 9. Cycle III Formative Test Results

Number of Students	19 students
Number of Values	1610
Average value	84.7
Complete	17 students (89%)
Incomplete	2 Students (11%)

Based on the data obtained in research on multiplication arithmetic operations, it is known that using the Teams Game Tournament learning method in learning multiplication arithmetic operations can improve student learning outcomes. Through the Teams Game Tournament learning method, students can learn using heterogeneous small groups of 4-5 students. The use of these groups helps students in the learning process and can solve problems given by the teacher. The mathematics learning process for fourth grade students through the Teams Game Tournament learning method can improve student learning outcomes in multiplication calculation operations. Based on the evaluation results from Cycle I to Cycle III, it shows that many students have achieved success indicators, namely: (1) Individually, students can achieve a score of ≥ 70 on the multiplication arithmetic operation material. (2) Classically, a percentage of $>85\%$ of the total students in one class have received a score of ≥ 70 . Through the team learning system, students are helped in understanding the material on multiplication calculation operations, can answer questions in the game, and can do evaluation questions well and guide students towards success in their learning. After conducting classroom action research from Cycle I to Cycle III, data on the mathematical values of multiplication calculation operations can be obtained using the Teams Game Tournament learning method.

Teams Game Tournament learning method based on the results of observations of student activity obtained an average of 2.4. There were 11 students (58%) out of 19 students who graduated with an average score of 74.2. Classically, the value obtained has not yet reached 85% completeness. Therefore, improvements are needed in Cycle II. Improvements made in Cycle II were that teachers were more maximal in paying attention and guiding students, especially the 8 students who had not yet completed. Directing students in discussion groups to help their friends who do not understand the material being taught so that students really understand and there is an increase in learning outcomes in Cycle II.

Teams Game Tournament learning method, based on the results of observations of student activity, an average of 3.2 was obtained. There were 14 students who completed or 74% of the 19 students with an average student score of 78.9. Classically the score obtained is quite satisfactory even though it has not yet reached 85% completeness. However, improvements need to be made in Cycle III to achieve classical completion. Improvements made in Cycle III were that teachers were more maximal in paying attention and guiding students, especially the 5 students who had not yet completed. Directing students in discussion groups to help their friends who do not understand the material being taught so that students really understand and there is an increase in learning outcomes in Cycle III.

Teams Game Tournament learning method, based on the results of observing student activity, obtained an average of 3.3. Classically, the score obtained has exceeded the 85% completion achievement. There were 17 students who graduated or 89% with a class average of 84.7. Students who have not yet completed or have not met the Minimum Completion Criteria are still considered by guiding and directing students to want to study harder, especially in multiplication calculation operations. In this case, the researcher did not just give up, but asked for help from the class IV teacher to help supervise the learning activities of the 2 students so that their mathematics learning outcomes, especially multiplication calculation operations, increased.

Table 10. Improvement in student learning outcomes from pre-cycle to cycle III

Activity	Average value	Improvements obtained
Pre cycle	58.4	15.8
Cycle I	74.2	15.8
Cycle II	78.9	4.7
Cycle III	84.7	5.8

Based on the data above, it can be seen that the increase in student learning outcomes from Pre-Cycle to Cycle I was 15.8 with an average score for Pre-Cycle 58.5 and Cycle I 74.2. Cycle I to Cycle II saw an increase of 4.7 from an average value of 74.2 to 78.9. Cycle III produced an average score of 84.7 with an increase of 5.8 from Cycle II.

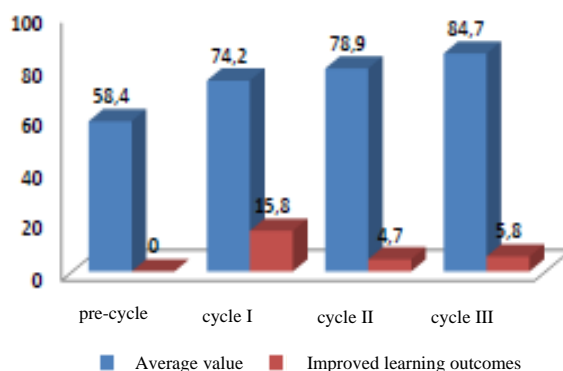


Figure 2. Increased learning outcomes each cycle

The percentage of research results from pre-cycle to cycle III obtained data on the completeness of the overall learning outcome values below:

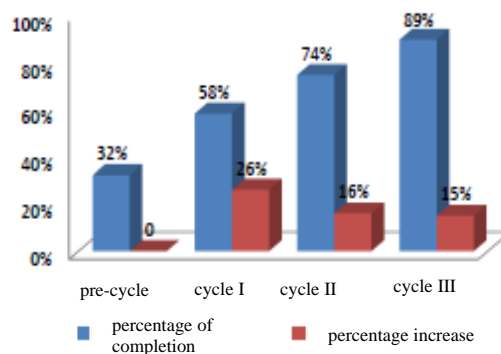


Figure 3. Percentage diagram of completion of pre-cycle - cycle III mathematics scores

From the results of the completion percentage values above, it can be explained that in the Pre-Cycle 32% of students completed. In Cycle I it increased to 58% of students who completed with an increase of 26% from Pre-Cycle. In Cycle II the level of student completion was 74% with a percentage increase of 16% from Cycle I. And in Cycle III student completion reached 89% with a percentage increase of 15% from Cycle II. From these results it can be concluded that mathematics learning using the Teams Game Tournament learning method, from Pre-Cycle to Cycle III, students experienced quite good improvement. These results are in line with previous research where learning mathematics using the teams game tournament learning method can improve students' mathematics learning outcomes [34], [35].

The implication of this research in the field of education is that the Teams Game Tournament learning method can be considered effective for improving mathematics learning outcomes in multiplication material in grade IV Madrasah Ibtidaiyah. The results of this research provide valuable insight for educational practitioners regarding the use of learning strategies that can increase student interest and learning outcomes in mathematics. However, there are several limitations that need to be considered in this research, such as the limited time span for measuring long-term learning outcomes and the use of a sample that may not fully represent the student population in all schools. Therefore, it is recommended for future research to expand the sample scope, take a longer time span for measuring learning outcomes, and consider other factors that can influence the effectiveness of the Teams Game Tournament learning method in a broader context.

4. CONCLUSION

Based on the results of research conducted at Madrasah Ibtidaiyah Kawengen 01, East Ungaran District, Semarang Regency, it can be concluded that the teams game tournament learning method can improve mathematics learning outcomes for multiplication counting operations in class IV students. The increase in student learning outcomes can be seen from the increase in the average class score from pre cycle to cycle I, namely 15.8 with an average score for pre cycle 58.4 and cycle I 74.2. cycle I to cycle II saw an increase of 4.7 from the average value to 74.2. cycle III produced an average score of 84.7 with an increase of 5.8 from cycle II. Furthermore, the

teams game tournament learning method can meet the target of achieving the criteria for completing at least 85% of mathematics lessons on multiplication counting operations for class IV students. The percentage of mathematics learning outcomes that have classically exceeded the limit of completeness is proven in the results of cycle III, with details; In cycle I there were 11 students who completed it with a completion percentage of 58%, then in cycle II there were 14 students who completed it with a completion percentage of 74% and in cycle III there were 17 students who completed it with a completion percentage that had exceeded the classical achievement limit, namely 89%. Therefore, researchers recommend implementing the teams game tournament learning method as an effective strategy in improving mathematics learning outcomes, especially in multiplication operations, in class IV Madrasah Ibtidaiyah.

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